

### REMARKS

Claims 1-82 were presented for examination in the present Application. In the Office Action dated January 2, 2004, the Examiner rejected claims 1-78 on grounds of lack of utility, failure to comply with the enablement requirement, and/or obviousness. The Examiner also raised objections to the specification, figures and claims due to various informalities. By this communication, Applicants are amending claims 1, 41, 55, 63, 78 and 82, as well as portions of the figures and specification objected to by the Examiner. Applicants respectfully request reconsideration of the Application, as amended herein.

Applicants note that claims 79-82, although previously presented for examination, were apparently not considered by the Examiner and were not addressed in the Office Action. In view of the fact that these claims recite subject matter similar to that recited in the examined claims, it is assumed for the purpose of the discussion below that rejections asserted by the Examiner with respect to corresponding claims in the Application would have been applied to claims 79-82 if these claims had been examined.

### Objections

The Examiner objected to FIG. 4 due to an inconsistency in the numbering of the ME and AKB elements. The Applicants have amended FIG. 4 to correct this inconsistency.

The Examiner objected to the specification due to the omission of the Lexical Knowledge Base element in FIG. 2, and due to numbering inconsistencies between elements depicted in FIGS. 2 and 4. Applicants have amended FIG. 2 to add the Lexical Knowledge Base Element, and have additionally amended FIG. 4 as well as relevant portions of the specification to remedy the numbering inconsistencies.

Finally, the Examiner objected to claim 63 based on an alleged failure to identify the purpose or function in the preamble, and additionally objected to claims 77 and 78 based on purported claim numbering problems. Claim 63 has been amended to more clearly state its purpose, namely a method for computerized analysis of communications using computer-generated adaptive models. Applicants believe that the objections to claims 77 and 78 are erroneous, since claim 77 depends from claim 76 (not from claim 78, as stated by the Examiner) and has sufficient antecedent basis for all claim terms, and claim 78 is an independent claim.

### Rejections Under §101

Independent claims 41, 55, 63 and 78 stand rejected under 35 U.S.C. §101 as being directed to non-statutory subject matter. Applicants believe that the Examiner would have also applied the same rejection to independent claim 82 had the claim been examined, since it recites subject matter closely similar to that of claim 78.

The Examiner based the §101 rejections on the grounds that the claims recite abstract ideas that are not also applied to the technological arts. Claims 41, 55, 63, 78 and 82 have been amended by this communication to specify the claimed methods are implemented in a computer network environment, and that steps of the methods are performed on a computer. Applicants submit that the amended claims are now limited to practical applications in the technological arts and therefore satisfy the utility requirement of §101. Accordingly, withdrawal of the §101 rejections is believed to be proper.

### Rejections Under §112

Independent claims 41, 53, 63 and 78 were also rejected under §112, first paragraph, as failing to comply with the enablement requirement. It is Applicants' understanding that these rejections were based on the alleged lack of utility of the affected claims, and that amendment of these claims to satisfy the utility requirement renders the §112 rejections moot.

Claim 77 was rejected under §112, second paragraph, as failing to provide sufficient antecedent basis for the terms "predicted action" and "actual action." Applicants believe that this rejection is erroneous, since claim 77 recites neither of these terms. Withdrawal of the rejection is therefore respectfully requested.

### Rejections Under §103

Independent claim 1 and dependent claims 2-40 stand rejected under 35 U.S.C. §103(a) as being unpatentable over USPN 5,867,495 to Elliott et al. (hereinafter "Elliott") in view of USPN 5,371,807 to Register et al. (hereinafter "Register") and USPN 5,878,385 to Bralich et al. (hereinafter "Bralich") Applicants respectfully traverse this rejection as applied to the amended claims.

Claim 1 now recites, inter alia, "a contact center configured to send and receive communications" and "a modeling engine configured to analyze a communication received by the contact center and determine an intent of the received communication." The amendments to the claim were made to more clearly state the relationship between the contact center and the modeling engine, namely that the modeling engine analyzes communications received by the contact center. This relationship is not disclosed or suggested by Elliott, which the Examiner relies on for the teachings of the contact center and modeling engine limitations. In advancing the rejection of claim 1, the Examiner cited col. 197, lines 7-14 of Elliott as teaching a contact center (drawing an apparent equivalence between the customer service center disclosed in Elliott and the claimed contact center) and col. 22, lines 29-41 as teaching a modeling engine (drawing an apparent equivalence between the analysis services/other special services components disclosed in Elliott and the claimed modeling engine). The Examiner has not cited any portion of Elliott disclosing an arrangement of the customer service center and analysis services/other special services components wherein the analysis services/other special services components analyze communications received by the customer service center. In fact, col. 197, lines 7-14 merely teaches that customer calls may be routed to regional customer service centers based on loading considerations, and fails to disclose or suggest in any way that customer calls (i.e., communications) received by the regional customer contact centers are analyzed by a modeling engine or equivalent structure to determine an intent; in fact, Elliott does not discuss any mechanism for analyzing the received customer calls (beyond, presumably, a human operator).

Applicants further contend that the relevant portion of Elliott cited by the Examiner (col. 22, lines 29-41) fails to disclose a modeling engine. The cited portion discloses two functional components of an ISP architecture: an analysis services component, which is "a special kind of service engine...based on adding value based upon network statistics or call context information in real time or near real time," and an other special services component, which "entail[s] other

specialized forms of applications or services that may or may not be based on the Service Engine model.” It is unclear to Applicants how the foregoing description can be construed as teaching a modeling engine. The claim term “modeling engine” clearly denotes a software program that generates models, i.e., data structures representative of real-world objects. In the present Application, the real-world objects are in the form of, for example, email communications, and the modeling engine builds data structures identifying key concepts in the communications and the relationship between the concepts (see, e.g., page 15, lines 5-13 of the Application). Elliott does not disclose that either the analysis services component or the other special services component achieves its function through generation of models; the statement that the other special services module “entail[s] other specialized forms of applications or services that may or may not be based on the Service Engine model” does not by itself teach or suggest the use of a modeling engine.

Applicants also traverse the Examiner’s contention that it would be obvious to one of ordinary skill in the art to combine the teachings of Elliott, Register, and Bralich to produce the claimed invention. We note first that it is highly questionable that Elliott should be considered analogous prior art. The problem solved by Elliott, namely routing, billing, monitoring and reporting of calls in a hybrid switched/IP network, is unrelated to the problem solved by the claimed invention, namely the generation and adaptation of models to analyze and automatically respond to communications in a contact center environment. Applicants therefore contend that Elliott is not reasonably pertinent to the field of endeavor embodied by the claimed invention, and that an obviousness rejection that relies on Elliott is improper.

Even if one assumes, *arguendo*, that Elliott is analogous art, the Examiner has failed to show the requisite motivation to combine the features of Elliott with those of Register and Bralich. As noted above, Elliott is directed to the problem of routing and administering calls in a hybrid network. In contrast, Register and Bralich are directed to computer-based methods for parsing and classifying natural language texts. The portions of Elliott cited by the examiner do not mention transmission or analysis of communications in the form of natural language texts. It is unclear why one of ordinary skill in the art would be motivated to modify the network of Elliott with the natural language processing tools of Register and Bralich in view of the fact that the operation of the network of Elliott does not involve the transmission and analysis of natural language texts. Applicants respectfully submit that the alleged motivation offered by the

Examiner in support of his rejection (“increasing management and control abilities”, “better accuracy”, “decreasing costs without compromising quality” and “speeding up computation”) merely represent abstract objectives, rather than concrete suggestions of how the teachings may be combined to solve specific problems. In the absence of any demonstrated suggestion or motivation to combine references, the combination of features from Elliott, Register and Bralich by the Examiner to reconstruct the claimed invention (i.e., using hindsight reconstruction) is impermissible, and does not support a determination of obviousness.

In sum, the rejection of claims 1-40 as being unpatentable over Elliott in view of Register and Bralich is improper for at least three reasons: (i) Elliott does not teach or suggest the claimed relationship wherein a modeling engine analyzes communications received; (ii) Elliott does not teach or suggest a modeling engine, as that term is properly construed, and; (iii) no motivation exists to combine the teachings of Elliott with those of Register and Bralich.

Independent claim 41 and dependent claims 42-54 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of USPN 5,890,142 to Tanimura et al. (hereinafter “Tanimura”), Register and Bralich. Applicants respectfully traverse this rejection as applied to the amended claims.

Claim 41, as amended, recites a step of “analyzing the communication at a computer attached to the computer network to determine an intent.” The Examiner argues that this step is taught by Elliott, and cites col. 22, lines 39-41 of Elliott for support. However, Applicants respectfully contend that such a teaching is absent from Elliott. The cited portion of Elliott, parts of which are reproduced above in connection with the discussion of claim 1, sets forth a highly generalized description of the analysis services and other special services functional components of an ISP platform. With respect to the analysis services component, Elliott discloses only that the component “add[s] value based upon network statistics or call context information in real time or near real time.” It is unclear how this statement could be construed as disclosing or suggesting the claimed step of analyzing a communication to determine an intent. Similarly, the description of the other special services component does not include any text would could be construed as teaching the aforementioned step.

Claim 41 further recites steps of “predicting a response to the communication based on the intent, producing a predicted response”, “preparing a response to the communication, producing an actual response” and “comparing the actual response to the predicted response to

improve subsequent predictions.” Applicants traverse the Examiner’s argument that Tanimura teaches the foregoing steps. Tanimura is directed to an apparatus for monitoring a complex dynamic system (examples of which provided by Tanimura include a brain and a turbine) and detecting, using an application of deterministic chaos theory, whether the system is in an abnormal condition. The Examiner cites col. 1, lines 53 to col. 2, line 4 of Tanimura as support for the position that Tanimura teaches the claimed steps. Applicants disagree that a fair reading of the cited portion of Tanimura produces the requisite teachings. Instead, Tanimura discloses deriving a predicted value of timeseries data, measuring an actual value of timeseries data, and comparing the actual value to the predicted value to determine if an abnormal condition exists. The derivation of predicted data and comparison to actual data, as performed in Tanimura, is not the equivalent of and is easily distinguishable from the claimed sequence of predicting a **response to a communication based on an intent, preparing an actual response to the communication, and comparing the actual response to the predicted response.**

Applicants also traverse the Examiner’s contention that it would be obvious to one of ordinary skill in the art to combine the teachings of Elliott , Tanimura, Register, and Bralich to produce the claimed invention. As noted above, it is Applicants’ position that Elliott should not be considered analogous prior art. The pertinence of Tanimura to the claimed invention is even more doubtful. Tanimura is directed to a problem wholly unrelated to the problem solved by the claimed invention. More specifically, Tanimura relates to a technology for monitoring the behavior of a dynamic system, such as shaft vibrations of a turbine, and determining if an abnormal condition is present by comparing measured data with predicted data. Tanimura does not concern in any manner the generation and adaptation of models to analyze and automatically respond to communications in a contact center environment, as does the claimed invention. Applicants therefore contend that Tanimura as well as Elliott are not reasonably pertinent to the field of endeavor embodied by the claimed invention, and that an obviousness rejection that relies on these references is improper.

Furthermore, the Examiner has failed to show the requisite motivation to combine the features of Elliott with those of Tanimura, Register and Bralich. As noted above, Register and Bralich are directed to computer-based methods for parsing and classifying natural language texts. Both Elliott and Tanimura do not mention transmission or analysis of communications in the form of natural language texts. It is unclear why one of ordinary skill in the art would be

motivated to modify the network of Elliott with the natural language processing tools of Register and Bralich in view of the fact that the operation of the network of Elliott and of the monitoring system of Tanimura do not involve the transmission and analysis of natural language texts. Applicants again argue that the alleged motivation offered by the Examiner in support of his rejection (“increasing management and control abilities”, “better accuracy”, “decreasing costs without compromising quality” and “speeding up computation”) represent abstract objectives, rather than concrete suggestions of how the teachings may be combined to solve specific problems. In the absence of any demonstrated suggestion or motivation to combine references, the combination of features from Elliott, Tanimura, Register and Bralich by the Examiner constitutes impermissible hindsight reconstruction, and does not support a determination of obviousness.

In sum, the rejection of claims 41-54 as being unpatentable over Elliott in view of Tanimura, Register and Bralich is improper for at least three reasons: (i) Elliott does not teach or suggest the claimed step of analyzing the communication at a computer attached to the computer network to determine an intent; (ii) Tanimura does not teach or suggest the claimed steps of “predicting a response to the communication based on the intent, producing a predicted response”, “preparing a response to the communication, producing an actual response” and “comparing the actual response to the predicted response to improve subsequent predictions”, and; (iii) no motivation exists to combine the teachings of Elliott with those of Tanimura, Register and Bralich.

Independent claim 55 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Register and Bralich. Applicants respectfully traverse this rejection as applied to the amended claim.

Claim 55 recites the steps of “receiving the relationship event” and “analyzing the relationship event to identify concepts in the relationship event.” In the Office Action, the Examiner argues that the step of “receiving the relationship event” is disclosed at col. 120, lines 9-11 of Elliot, drawing an apparent equivalence between the claimed relationship event and the “network event” of Elliott. Assuming, arguendo, that the network events of Elliott may be construed as relationship events (defined at page 9, lines 19-20 of the present application as “any communications between the organization and other external or internal entities”), we note that Elliott fails to teach or suggest a step of analyzing the network event to identify concepts therein.

The Examiner erroneously states that the analyzing step is taught at col. 73, line 42 to col. 74, line 19 of Elliott. However, the cited portion of Elliott contains only a general discussion of the principles of derived objects in object oriented programming, and does not specifically disclose or suggest the process of analyzing the network events to identify concepts.

Claim 55 additionally recites the step of "building an event model of the relationship event using the concepts." The Examiner relies on col. 39, line 56 to col. 40, line 25 of Elliott for this teaching. The cited portion of Elliott is directed to a Resource Management Model that defines common architectural guidelines for the ISP architecture. The cited portion lacks any discussion of building an event model of the network event (the equivalent of the relationship event) using concepts identified in the network event. Therefore, Applicants submit that the step of "building an event model of the relationship event using the concepts" is not in fact disclosed or suggested by Elliott.

Furthermore, the Examiner has failed to show the requisite motivation to combine the features of Elliott with those of Register. As noted above, Elliott is directed to the problem of routing and administering calls in a hybrid network, and Register is directed to computer-based methods for parsing and classifying natural language texts. Applicants submit that one of ordinary skill in the art would not be motivated to modify the network of Elliott with the natural language processing tools of Register in view of the fact that the operation of the network of Elliott does not involve the transmission and analysis of natural language texts. In the absence of any demonstrated suggestion or motivation to combine references, the combination of features from Elliott and Register to reconstruct the claimed invention (i.e., using hindsight reconstruction) is impermissible, and does not support a determination of obviousness.

In sum, the rejection of claims 55 as being unpatentable over Elliott in view of Register is improper for at least three reasons: (i) Elliott does not teach or suggest the claimed step of "analyzing the relationship event to identify concepts in the relationship event"; (ii) Elliott does not teach or suggest the claimed step of "building an event model of the relationship event using the concepts", and; (iii) no motivation exists to combine the teachings of Elliott with those of Register.

Independent claim 56 and dependent claims 57-58 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Tanimura, Register and Bralich. Claim 56



is a close analog of claim 41, and Applicants traverse the rejections of claim 56-58 for the same reasons discussed above in connection with claim 41.

Independent claim 59 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Register. Claim 59 is a close analog of claim 55, and Applicants traverse the rejection of claim 59 for the same reasons discussed above in connection with claim 55.

Independent claim 60 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Tanimura. Claim 60 is a close analog of claim 41, and Applicants traverse the rejection of claim 41 for substantially the same reasons discussed above in connection with claim 41.

Independent claim 61 and dependent claim 62 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Register. Applicants note that claim 61 contains all of the limitations set forth in claim 1 as well as further limitations. Applicants therefore traverse the rejections of claims 61-62 for at least the same reasons discussed above in connection with claim 1.

Independent claim 63 and dependent claims 64-72 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Tanimura, Register and further in view of USPN 5,493,677 to Balogh et al. (hereinafter "Balogh") and USPN 5,745,652 to Bigus (hereinafter "Bigus"). Applicants traverse these rejections as applied to the amended claims.

Claim 63 recites a step of "analyzing content of the communication on a computer to identify at least one concept of the communication." The Examiner argues that this step is taught by Elliott, and cites col. 22, lines 29-41 of Elliott for support. However, Applicants respectfully contend that such a teaching is absent from Elliott. The cited portion of Elliott merely sets forth a highly generalized description of the analysis services and other special services functional components of an ISP platform. With respect to the analysis services component, Elliott discloses only that the component "add[s] value based upon network statistics or call context information in real time or near real time." This broad statement does not amount to teaching the claimed step of analyzing content of the communication on a computer to identify at least one concept of the communication. Similarly, the description of the other special services component does not include any text would could be construed as teaching the aforementioned step.

Claim 63 further recites a step of “creating a model of the communication using the at least one concept.” The Examiner relies on col. 39, line 56 to col. 40, line 25 of Elliott for this teaching. The cited portion of Elliott is directed to a Resource Management Model that defines common architectural guidelines for the ISP architecture. The cited portion lacks any discussion of creating a model of a communication using identified concepts in the communication. Therefore, Applicants submit that the step of “creating a model of the communication using the at least one concept.” is not in fact disclosed or suggested by Elliott.

Claim 63 also recites steps of “comparing the model of the communication to a set of adaptive models to produce a predicted response to the communication”, “preparing an actual response to the communication” and “comparing the predicted response and the actual response to produce feedback.” Applicants traverse the Examiner’s argument that Tanimura teaches the foregoing steps. As discussed above, Tanimura is directed to an apparatus for monitoring a complex dynamic system and detecting, using an application of deterministic chaos theory, whether the system is in an abnormal condition. The Examiner cites col. 1, lines 53 to col. 2, line 4 of Tanimura as support for the position that Tanimura teaches the claimed steps. Applicants disagree that a fair reading of the cited portion of Tanimura produces the requisite teachings. Instead, Tanimura discloses deriving a predicted value of timeseries data, measuring an actual value of timeseries data, and comparing the actual value to the predicted value to determine if an abnormal condition exists. The derivation of predicted data and comparison to actual data, as performed in Tanimura, is not the equivalent of and is easily distinguishable from the claimed sequence of producing a predicted response to a communication by comparing a model of the communication to a set of adaptive models, preparing an actual response to the communication, and producing feedback by comparing the actual/predicted response to the communication.

Furthermore, the Examiner has failed to show the requisite motivation to combine the features of Elliott with those of Tanimura, Register, Bralich, Bigus and Balogh. As noted above, Register and Bralich are directed to computer-based methods for parsing and classifying natural language texts; Balogh is directed to an image archiving and retrieval process that utilizes natural language processing to identify concepts in user queries; and, Bigus is directed to a neural-net based controller for dynamically allocating resources in a computer system, Elliott does not

mention transmission or analysis of communications in the form of natural language texts. It is unclear why one of ordinary skill in the art would be motivated to modify the network of Elliott with the natural language processing tools of Register, Bralich and Balogh in view of the fact that the operation of the network of Elliott and of the monitoring system of Tanimura do not involve the transmission and analysis of natural language texts. Applicants yet again argue that the alleged motivation offered by the Examiner in support of his rejection (“increasing management and control abilities”, “better accuracy”, “decreasing costs without compromising quality” and “speeding up computation”) represent abstract objectives, rather than concrete suggestions of how the teachings may be combined to solve specific problems. In the absence of any demonstrated suggestion or motivation to combine references, the combination of features from Elliott, Tanimura, Register, Bralich, Bigus and Balogh by the Examiner constitutes impermissible hindsight reconstruction, and does not support a determination of obviousness. Applicants also argue that the Bigus reference is not in a field reasonably pertinent to that of the claimed invention.

For at least the foregoing reasons, Applicants submit that claims 63-72 are not made obvious by the prior art relied on by the Examiner.

Independent claim 73 and dependent claims 74-77 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Tanimura, Bigus, Register, Bralich and Balogh. Applicants note that claim 73 contains all of the limitations set forth in claim 1 as well as further limitations. Applicants therefore traverse the rejections of claims 73-77 for at least the same reasons discussed above in connection with claim 1.

Independent claim 78 and dependent claims 79-81 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Elliott in view of Tanimura, Bigus, Register, Bralich and Balogh. Applicants traverse these rejections as applied to the amended claims.

Claim 78 recites a step of “creating a model of the communication.” The Examiner relies on col. 22, lines 29-41 and col. 39, line 56 to col. 40, line 25 of Elliott for this teaching. The cited portions of Elliott respectively consist of a highly generalized description of the analysis services and other special services functional components of an ISP platform, and a brief description of a Resource Management Model that defines common architectural guidelines for the ISP architecture. The cited portions lack any discussion of creating a model of a

communication. Therefore, Applicants submit that the step of “creating a model of the communication” is not in fact disclosed or suggested by Elliott.

Claim 78 also recites steps of “comparing the model of the communication to a set of adaptive models to produce a predicted action in response to the communication” and “comparing the predicted action with an actual action in response to the communication to produce feedback.” Applicants traverse the Examiner’s argument that Tanimura teaches the foregoing steps. As discussed above, Tanimura is directed to an apparatus for monitoring a complex dynamic system and detecting, using an application of deterministic chaos theory, whether the system is in an abnormal condition. The Examiner cites col. 1, lines 53 to col. 2, line 4 of Tanimura as support for the position that Tanimura teaches the claimed steps. Applicants disagree that a fair reading of the cited portion of Tanimura produces the requisite teachings. Instead, Tanimura discloses deriving a predicted value of timeseries data, measuring an actual value of timeseries data, and comparing the actual value to the predicted value to determine if an abnormal condition exists. The derivation of predicted data and comparison to actual data, as performed in Tanimura, is not the equivalent of and is easily distinguishable from the claimed sequence of producing a predicted action in response to the communication based on comparing the model of the communication to a set of adaptive models, and comparing the predicted action with an actual action.

Furthermore, the Examiner has failed to show the requisite motivation to combine the features of Elliott with those of Tanimura, Register, Bralich, Bigus and Balogh. As noted above, Register and Bralich are directed to computer-based methods for parsing and classifying natural language texts; Balogh is directed to an image archiving and retrieval process that utilizes natural language processing to identify concepts in user queries; and, Bigus is directed to a neural-net based controller for dynamically allocating resources in a computer system. Elliott does not mention transmission or analysis of communications in the form of natural language texts. It is unclear why one of ordinary skill in the art would be motivated to modify the network of Elliott with the natural language processing tools of Register, Bralich and Balogh in view of the fact that the operation of the network of Elliott and of the monitoring system of Tanimura do not involve the transmission and analysis of natural language texts. Applicants yet again argue that the alleged motivation offered by the Examiner in support of his rejection (“increasing

management and control abilities”, “better accuracy”, “decreasing costs without compromising quality” and “speeding up computation”) represent abstract objectives, rather than concrete suggestions of how the teachings may be combined to solve specific problems. In the absence of any demonstrated suggestion or motivation to combine references, the combination of features from Elliott, Tanimura, Register, Bralich, Bigus and Balogh by the Examiner constitutes impermissible hindsight reconstruction, and does not support a determination of obviousness. Applicants also argue that the Bigus reference is not in a field reasonably pertinent to that of the claimed invention.

For at least the foregoing reasons, Applicants submit that claims 78-81 are not made obvious by the prior art relied on by the Examiner.

Finally, independent claim 82, which was not previously examined, is submitted to be patentable over the prior art of record for substantially the same reasons as those advanced above in connection with claim 78.

### CONCLUSION

In accordance with the above remarks, Applicants believe that the rejections in the Office Action dated January 2, 2004 are fully overcome, and that the Application is in condition for allowance. If the Examiner has questions regarding this case, he is invited to contact the Applicants' undersigned representative at the number given below.

Respectfully Submitted,

Yoram Nelken, et al.

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By: \_\_\_\_\_



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